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PCT/JP2003/007313



PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 03-025-PCT	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/JP2003/007313	International filing date (<i>day/month/year</i>) 10 June 2003 (10.06.2003)	Priority date (<i>day/month/year</i>) 20 August 2002 (20.08.2002)
International Patent Classification (IPC) or national classification and IPC C07D 323/00, G01N 21/64, G01N 31/00, G01N 21/78		
Applicant JAPAN SCIENCE AND TECHNOLOGY CORPORATION		

1.	This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2.	This REPORT consists of a total of <u>4</u> sheets, including this cover sheet. <input type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT). These annexes consist of a total of _____ sheets.
3.	This report contains indications relating to the following items: I <input checked="" type="checkbox"/> Basis of the report II <input type="checkbox"/> Priority III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV <input type="checkbox"/> Lack of unity of invention V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI <input type="checkbox"/> Certain documents cited VII <input type="checkbox"/> Certain defects in the international application VIII <input checked="" type="checkbox"/> Certain observations on the international application

Date of submission of the demand 24 September 2003 (24.09.2003)	Date of completion of this report 15 January 2004 (15.01.2004)
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

Form PCT/IPEA/409 (cover sheet) (July 1998)

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International Application No.

PCT/JP2003/007313

I. Basis of the report

1. With regard to the elements of the international application:*

- ☒ the international application as originally filed
- ☐ the description:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the claims:
 pages _____, as originally filed
 pages _____, as amended (together with any statement under Article 19
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the drawings:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item. These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

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International Application No.

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V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claim	3	YES
	Claims	1, 2	NO
Inventive step (IS)	Claim	3	YES
	Claims	1, 2	NO
Industrial applicability (IA)	Claims	1-3	YES
	Claims		NO

2. Citations and explanations

Document 1: TANIGAWA, Isamu et al., SYNTHETIC MACROCYCLIC LIGANDS. VI. LITHIUM ION-SELECTIVE FLUORESCCENT EMISSION WITH CROWNED BENZO- AND NAPHTHO- THIAZOLYLPHENOLS, Tetrahedron Letters, 1984, Vol. 25, No. 46, pages 5327 to 5330

Document 2: NAKASHIMA, Ken'ichiro et al., Fluorescence reactions of crown benzothiazolylphonols with alkali and alkaline earth metal ions and their analytical application, Bulletin of the Chemical Society of Japan, 1987, Vol. 60, No. 9, pages 3219 to 3223

Document 3: NAKASHIMA, Ken'ichiro et al., A SENSITIVE METHOD FOR THE FLUOROMETRIC DETERMINATION OF LITHIUM WITH A "CROWNED" BENZOTHAZOLYLPHENOL, Talanta, 1984, Vol. 31, No. 9, pages 749-751

Document 4: WANG, Defen et al., Synthesis of 2'-hydroxy-1',3'-xylyl crown ethers, Gaodeng Xuexiao Huaxue Xuebao, 1985, Vol. 6, No. 1, pages 45-48

Because the subject matter of claims 1 and 2 is described in documents 1-4 cited in the ISR, it does not appear to be novel or to involve an inventive step. The compounds of claims 1 and 2 are described in the entire text of documents 1-4.

Because the subject matter of claim 3 is neither described nor suggested in any of the documents cited in the ISR, it appears to be novel and to involve an inventive step. In particular, the chiral sensor containing the compound described in claim 2 is not described in any of the documents.

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VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

The subject matter of claim 1 pertains to a compound defined by the desired property of "bonded so that an unsaturated bond at an optically active combining site having such unsaturated bond and a fluorescent substituent or a substituent capable of imparting fluorescence are in a conjugated state," and the subject matter of claim 3 pertains to a chiral sensor comprising the compound defined by the aforementioned desired property. Furthermore, the descriptions of claims 1 and 3 include all compounds having such a property, but because only a very small portion of the compounds are disclosed in the sense of PCT Article 5, this examination finds that only a very few of such compounds are supported by the specification in the sense of PCT Article 6.

Furthermore, for "an optically active compound bonded so that an unsaturated bond at an optically active combining site having such unsaturated bond and a fluorescent substituent or a substituent capable of imparting fluorescence are in a conjugated state," because the scope of substances having such substances cannot be identified even after considering the technical knowledge at the time of filing, the subject matter of claims 1 and 3 does not appear to satisfy the requirement for clarity under PCT Article 6.